Testimony of the Honorable Deborah A.P. Hersman
Chairman
National Transportation Safety Board
Before the
Subcommittee on Railroads, Pipelines, and Hazardous Materials
Committee on Transportation and Infrastructure
United States House of Representatives
Hearing on
The Safety of Hazardous Liquid Pipelines:
Regulated versus Unregulated Pipelines
Washington, DC
June 29, 2010

Introduction/Overview

Chairman Brown, Ranking Member Shuster, Members of the Subcommittee, thank you for the opportunity to address you today on the safety of hazardous liquid pipelines. According to the Pipeline and Hazardous Materials Safety Administration (PHMSA), there are approximately 173,000 miles of hazardous liquid pipelines. The National Transportation Safety Board (NTSB) plays an important role in promoting the safe transit of liquid and gas materials through this pipeline system by investigating accidents and issuing safety recommendations.

While PHMSA has met several of the NTSB's recommendations to improve pipeline safety, we remain concerned about certain aspects of PHMSA's pipeline safety program. Two such areas specifically addressed in the Pipeline, Inspection Protection Enforcement Safety (PIPES) Act of 2006 are the regulation of low-stress pipeline systems and requirements for the use of excess flow valves.

Regulation of Low-Stress Pipeline Systems

Corrosion failures on the BP Exploration, Inc.'s, low-stress oil transit lines from the Prudhoe Bay oil fields to the Trans Alaska pipeline in 2006 raised concerns among Members of Congress about the potential pollution of environmentally sensitive areas. As a result, Congress included provisions in the PIPES Act mandating that PHMSA issue regulations subjecting low-stress hazardous liquid pipelines near unusually sensitive environmental areas to the same standards and regulations as other hazardous liquid pipelines. Low-stress pipelines are those that are operated at a stress level of 20 percent or less of their strength ratings.

At the time the PIPES Act was enacted, federal pipeline safety regulations only applied to low-stress pipelines that were located in populated areas, crossed navigable waterways, or carried highly volatile liquids, such as compressed liquefied propane. In a final rulemaking, "Pipeline Safety: Protecting Unusually Sensitive Areas from Rural Onshore Hazardous Liquid Gathering Lines and Low-Stress Lines," published on June 3, 2008, PHMSA issued regulations for rural onshore low-stress pipelines that have a diameter of at least 8 5/8 inches and that are within 1/2 mile of an area defined as unusually sensitive. Low-stress pipelines meeting these

criteria will be required to meet Title 49 Code of Federal Regulations, Part 195, for hazardous liquid pipelines in its entirety by July 2012.

The final rule also included regulations for rural onshore gathering lines that operate at stress levels greater than 20 percent of the pipe strength, have a diameter between 6 5/8 and 8 5/8 inches and are within 1/4 mile of an area defined as unusually sensitive. A "gathering line" is defined as a pipeline with a diameter of 8 5/8 inches or less that transports petroleum from a production facility. Under the final rule, rural onshore gathering lines will be required to meet Part 195 in part by July 2011. The safety requirements of Part 195 that will eventually apply to the rural onshore gathering lines include annual and accident reporting requirements, establishment of maximum operating pressure, installation of line markers, public education programs, damage prevention programs, corrosion control, and operator qualification programs.

On June 22, 2010, PHMSA published a follow-up Notice of Proposed Rulemaking (NPRM) addressing the regulation of all rural onshore hazardous liquid low-stress pipelines. This NPRM represents phase two of PHMSA's implementation of its mandate in the PIPES Act. In this NPRM, PHMSA proposes safety requirements for all rural low-stress pipelines not included under the phase one final rule. This latest NPRM does not include any new proposed requirements for onshore rural gathering lines.

The low-stress pipelines captured under the new NPRM include (1) rural low-stress pipelines of a diameter less than 8 5/8 inches located in or within one-half mile of an unusually sensitive area and (2) all other rural low-stress pipelines that were not included under phase one. PHMSA estimates that the NPRM will apply to 1,384 miles of low-stress pipelines not covered by the previous rule. Under the new NPRM, PHMSA proposes to establish three categories of rural onshore low-stress pipelines that delineate decreasing levels of risk. Category 1 includes those low-stress pipelines covered in the June 2008 rulemaking. Categories 2 and 3 include low-stress pipelines of decreasing risk on the basis of pipeline size and location. PHMSA is proposing partial compliance with Part 195 for category 2 and 3 low-stress pipelines.

The NTSB believes PHMSA has taken a reasonable approach to the regulation of hazardous liquid low-stress pipelines. However, as I will mention momentarily, the key to the success of these regulations will be effective oversight exercised by the pipeline operators and PHMSA.

The NTSB would also like to note the regulation of offshore pipeline systems has not been addressed in recent legislation or regulatory action. The NTSB recognizes that jurisdiction of offshore pipelines of all types is complex and involves the states, PHMSA, and the Department of the Interior.

The tragedy in the Gulf of Mexico involving the Deepwater Horizon drilling platform is a grim reminder of the damage that a major oil spill can cause. While the magnitude of the Deepwater Horizon spill is far greater than any known pipeline failure, the events in the Gulf should remind those involved in the pipeline industry that all pipelines must be sufficiently safeguarded and regulated in order to protect the public and the environment.

Integrity Management Programs for Distribution Systems and the Use of Excess Flow Valves

The PIPES Act also mandates that DOT prescribe minimum standards for integrity management programs for distribution pipeline systems. On June 25, 2008, PHMSA published an NPRM, "Integrity Management Program for Gas Distribution Pipelines", with proposed regulations that would require operators of gas distribution pipelines to develop and implement integrity management programs with the same objectives as the existing integrity management programs for hazardous liquid and gas transmission pipelines.

Integrity management programs for hazardous liquid and gas transmission pipelines typically require operators to assess the condition of their pipelines by using "in-line" inspection tools that travel through the pipeline to determine the nature and extent of any defects or pressure testing that yields information about the integrity of the pipeline. Such techniques are not feasible for typical distribution pipeline systems because of the differences in the design and operating parameters between distribution pipeline systems and hazardous liquid and gas transmission pipelines.

Further, the failure of a distribution pipeline is often initially detected from reports of a gas leak rather than a catastrophic rupture. As result, development and implementation of an effective leak management program is an important element of an integrity management program for a distribution pipeline.

PHMSA acknowledged these differences in the NPRM and properly emphasized the importance of various leak detection methods as essential elements of an integrity management program for distribution pipeline systems.

In its comments on the NPRM, the NTSB emphasized that while an effective leak detection program is a crucial element of the overall leak management program, the use of equipment that prevents or mitigates leaks is equally important. One such device that mitigates a gas pipeline leak is an "excess flow valve." An excess flow valve is a device installed on the distribution line, usually serving a user residence or facility, that detects an abnormally high flow rate, and when an excess flow is detected, automatically closes a valve, thus shutting off the flow of gas through the distribution line. The NPRM did not adequately address this aspect of leak management, other than incorporating the mandate for PHMSA to require excess flow valves on new or replacement distribution lines serving single family residences. PHMSA complied with this provision of the PIPES Act on December 4, 2009, when it published the final rule on integrity management programs for distribution pipeline systems.

The NTSB has long advocated the use of excess flow valves in gas distribution pipeline systems as an effective means of preventing explosions caused by natural gas leaking from distribution systems. On July 7, 1998, a natural gas explosion and fire destroyed a newly constructed residence in South Riding, Virginia, a suburb of Washington. The accident caused one fatality and one serious injury. The NTSB determined that the gas service line to the home had failed and that an uncontrolled release of gas had accumulated in the basement and subsequently ignited. The NTSB concluded from its investigation that had an excess flow valve

been installed in the service line, the valve would have closed shortly after the hole in the service line developed and the explosion likely would not have occurred. The NTSB recommended that PHMSA require excess flow valves be installed in all new and renewed gas service lines, regardless of a customer's classification, when the operating conditions are compatible with readily available valves. The NTSB believes that apartment buildings, other multifamily dwellings, and commercial properties are susceptible to the same risks from leaking gas lines as single-family residences, and we believe this gap in the law and the regulations should be eliminated.

Oversight of Integrity Management and Other Risk-Based Pipeline Safety Programs

Over the past decade or more, PHMSA has used a risk-based assessment for regulating the DOT pipeline safety program. PHMSA has successfully built a partnership with various facets of the pipeline industry to develop, implement and execute a multi-part pipeline safety program. In the NTSB's view, all stakeholders, including PHMSA, have come to rely heavily upon this approach. The NTSB believes that a risk-based methodology can be effective in developing and executing pipeline safety programs, and there are many positive elements to PHMSA's approach.

The DOT pipeline safety regulations based on risk assessment principles provide the structure, content, and scope for many aspects of the overall pipeline safety program. Within this regulatory framework, pipeline operators have the flexibility and responsibility to develop their individual programs and plans, determine the specific performance standards, implement their plans and programs, and conduct periodic self-evaluations that best fit their particular pipeline systems. PHMSA likewise has the responsibility to review pipeline operators' plans and programs for regulatory compliance and effectiveness.

The NTSB believes that with the risk-based assessment come increased responsibilities for both the individual pipeline operators and PHMSA. Operators must diligently and objectively scrutinize the effectiveness of their programs, identify areas for improvement, and implement corrective measures. PHMSA, as the regulator, must also do the same in its audits of the operators' programs and in self-assessments of its own programs. In short, both operator and regulator need to verify whether risk-based assessments are being executed as planned, and more importantly, whether these programs are effective.

Following pipeline accidents in Mounds View, MN and Edison, NJ, the Board issued recommendations to PHMSA to expedite requirements for the installation of remotely operated valves. Our recommendations were eventually closed in 2004 based on PHMSA's assertion that integrity management rules for high consequence areas would require operator evaluation of the need for and installation of emergency control devices, like remotely operated valves. NTSB has supported the integrity management process in principle, but also believes the critical component of successful integrity management depends upon the diligence of each individual operator, PHMSA, and its delegated State enforcement agencies.

Unfortunately, there have been some recent pipeline investigations in which the NTSB discovered indications that PHMSA and operator oversight of risk-based assessment programs,

specifically integrity management programs and public education programs, has been lacking and has failed to detect flaws and weaknesses in such programs.

In its investigation of the October 2004, rupture of an anhydrous ammonia pipeline near Kingman, Kansas, the NTSB identified deficiencies in PHMSA's auditing procedures when evaluating the operator's integrity management program. The operator did not include assessments of leak history when calculating relative risk scores for various segments of the pipeline. These relative risk scores were used to establish an initial baseline assessment of the integrity of the pipeline in the decision-making process for prioritizing the inspection schedule. Though PHMSA did find omissions of other risk factors during its review of the operator's integrity management program, PHMSA did not identify the omission of the leak history data during its initial review or during a subsequent review of the corrected plan. Consequently, the ruptured pipeline segment was not scheduled for a baseline assessment until 2006, almost 2 years after the October 27, 2004, rupture. The NTSB recommended that PHMSA require an operator to revise its pipeline risk assessment plan whenever it has failed to consider one or more risk factors that can affect pipeline integrity.

The November 1, 2007, rupture of a propane pipeline in Carmichael, Mississippi, resulted in two fatalities, seven injuries, and property damage exceeding $3 million. Before the accident, the pipeline operator relied upon contractors to obtain accurate mailing data and ensure that mailings to the public were completed. However, the operator did not perform oversight to ensure that all appropriate recipients were on the mailing lists and that the mailings met appropriate regulatory requirements. The operator also had not taken any action to determine whether recipients who received the mailings understood the guidance they contained. The NTSB determined that the pipeline operator failed to properly assess its public awareness and education program by relying upon contractors without appropriate oversight. The NTSB recommended that PHMSA initiate a program to evaluate pipeline operators' public education programs, including the operators' self-evaluations of the effectiveness of their public education programs.

On May 4, 2009, an 18-inch diameter gas transmission pipeline with an operating pressure of 850 psi ruptured near Palm City, Florida. The rupture was located in the Florida Turnpike right-of-way, between I-95 and the Florida Turnpike. The turnpike and interstate were closed for approximately three hours due to the accident. Two gas transmission pipelines operated by the same pipeline company were also located in the right-of-way but were reportedly not damaged.

The force of the released gas created a crater approximately 116.5 feet long by 17 feet wide by approximately 2.8 feet deep. Roughly 104 feet of the pipe was ejected from the ruptured pipeline and landed next to the crater. The closest edge of the crater was approximately 25 feet from the northbound paved edge of the Florida Turnpike.

There was no ignition of the released gas, and no fatalities were reported. However, two people were injured when their car reportedly hit debris, ran off the road, and turned over; a deputy sheriff was hospitalized after walking through a gas cloud; and the accident resulted in the evacuation of a nearby school and residential community.

The NTSB's ongoing investigation has determined that at the time of the accident, the operator had not identified the ruptured segment as located within a high consequence area, and therefore the segment was not covered by the operator's integrity management plan. However, an independent evaluation done by PHMSA at the NTSB's request shows the segment, in fact, is in a high consequence area. The NTSB is collecting documentation to determine the cause of this error.

As a result of these investigations, the NTSB is concerned that the level of self-evaluation and oversight currently being exercised is not uniformly applied by some pipeline operators and PHMSA to ensure that the risk-based safety programs are effective. The NTSB believes that to ensure effective risk-based integrity management programs are employed throughout the pipeline industry, PHMSA must establish an aggressive oversight program that thoroughly examines each operator's decision-making process for each element of its integrity management program.

Recent Accidents in Texas

The two most recent pipeline accidents in Cleburne, Texas and Darrouzett, Texas involved third-party excavation damage resulting in ruptures, fires, and explosions. Preliminary information from both investigations indicates that prior to the start of excavation activities, neither pipeline was marked or identified. Both investigations will determine the reasons why and how these lapses occurred.

Cleburne, TX Summary

On June 7, 2010, a natural gas transmission pipeline measuring 36-inches in diameter near Cleburne, Texas was struck and ruptured by a contractor for an electrical cooperative that was installing a pole for a power line. One member of the contractor's crew was drilling a hole while operating an auger affixed to a truck when the auger struck and punctured the transmission pipeline. An ignition and explosion of the escaping gas resulted, and the operator of the auger was killed. Six other crewmen were hospitalized.

The accident pipeline had a nominal wall thickness of 0.5-inch. The pipeline was operating at 950 psi at the time of the accident. The maximum allowable operating pressure is 1,050 psi. The pipeline, constructed in 1971, is 388 miles long, originating in Coyanosa, Texas and terminating in Ennis, Texas.

A second pipeline operated by a different pipeline company also traversed the accident area. Workmen in the area reported that they saw markers for the second pipeline. An NTSB investigator and Texas Railroad Commission personnel visiting the site also observed markers for the second pipeline, but the ruptured pipeline was not marked.

The NTSB is currently investigating this accident with the assistance of PHMSA and the Texas Railroad Commission (the state regulatory agency for pipeline safety).

Darrouzett, TX Summary

On June 8, 2010, a natural gas non-regulated gathering line measuring 14-inches was struck by a third party contractor near Darrouzett, Texas. The maximum allowable operating pressure of the gathering line was 700 psi; the line was operating at approximately 500 psi. The line begins in Follett, Texas, travels into Oklahoma, continues west and then returns to Texas near the Hansford/Sherman County area. The line is fed by many gathering lines in the area and ends at the plant in Sherman, Texas.

At the time of the incident, six contractor personnel were working in the area. Two persons were killed, one critically injured, and three others escaped injury. A bulldozer working in a caliche pit struck the 14-inch natural gas pipeline sometime before 4pm. The pipeline operator's SCADA system picked up a pressure loss and began closing valves to isolate the ruptured section of the pipeline. The fire was extinguished by 8 pm.

Preliminary information from the Texas Railroad Commission, the lead agency in this investigation, indicates that the excavator had not requested a permit to work in the area nor were there any pipeline markers at the accident scene. The accident gathering line is not regulated under DOT pipeline regulations.

PHMSA accident statistics over the past decade (2000-2009) identify corrosion as the leading cause of all reported pipeline accidents. The second leading reported cause is damage from third party excavators. Despite the focus on one-call systems, marking of pipelines prior to excavation, and other measures, the two accidents in Texas are a reminder that excavation damage remains a serious concern.

Closing

In summary, the NTSB believes more can be done to improve pipeline safety, and thus the safety of people living and working near, and receiving service from, our nation's pipelines.

This concludes my testimony and I would be happy to answer any questions you may have.